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AUTHOR Williamson, Leon; Wooden, Sharon L.
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ABSTRACT

The premise of this paper is that English orthography has formed a system that represents more than phonetic values, but also represents semantic, etymological, and preferential values. The paper notes that English is a fairly regular and complex system in which both sound and meaning share leading roles in determining spelling. Studies are discussed that have shown that common phonic generalizations do not hold true for spelling and it is noted that these research efforts cause conclusions about the logic of spelling because of a limited focus on grapheme-phoneme correspondence and because of the atypical word samples drawn primarily from basal readers. The authors discuss observations that they have made over the year with spelling students of all ages and note that when words are analyzed with a grid containing the four topics of phonics, semantics, etymology, and preference, most words fall into more than one category of spelling influence. Examples and explanations are provided of words that fall into these four categories. The paper notes that if all these values are not understood and appreciated, then English spelling may seem a morass. (MKM)

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Facets of English Spelling

Leon Williamson

Professor of Reading

New Mexico State University

Sharon L. Wooden

Department Head, Educational Specialties

New Mexico State University

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Facets of English Spelling

What's in the Literature on English Spelling

The paradoxical inconsistencies of English spelling can only be ferreted out by following rigorous and tedious scientific principles of linguistic research. The principles of classifying scientifically must not be limited to phoneme-grapheme correspondency since to do so will vitiate the search to understand English spelling and yield results similar to those reported by Clymer (1963), Bailey (1967), Emans (1967), and Burmeister (1968a, 1968b, 1971). These researchers focused on 45 common phonic generalizations most frequently found in manuals accompanying basal reading programs. Their efforts yielded confusion and inclusiveness for three basic reasons. (1) Rigorous and scientific principles did not set the parameters and guide the linguistic inquiry the researchers attempted to conduct. (2) The myopic perspective of phonics, which is common among authorities on reading, prevented a scientific inquiry into English spelling. (3) The word population, from which the samples were drawn, was skewed. For the most part, the word population came from basal readers which provide an atypical view of English spelling. This is compounded when common phonic generalizations are used in an attempt to discover consistent spelling patterns. These generalizations were developed by reading specialists and are promulgated by them too (Anderson, 1959; Bush & Huebner, 1979; Chall, 1967; Cheek & Cheek, 1980; Cordts, 1965; Duff & Sherman, 1977; Durkin, 19__; Fry, 1977; Guszak, 1972;

Heilman, 1972; Karlin, 1980; Smith, 1965).

Smith's Reading Instruction for Today's Children was once the most widely used college textbook used in preparing elementary teachers to teach reading. Smith's phonics chart (p. 196) is riddled with contradictions and errors. Some examples of inaccuracies pertaining to correspondencies for consonant phonemes and graphemes are: (1) The graphemes c, r, and x are listed as being associated only with one specific phoneme. (2) Smith contradicts the entry of c as being a grapheme which represents one phoneme by placing it in the category of consonant graphemes which represent two or more sounds. For this grapheme under this category, the examples of came and face are given. Thus, the letter c appears in both categories for graphemes which represent one and two or more sounds. (3) The graphemic combinations of dl and wr are listed as representing consonant, phonemic blends. (4) Under consonant digraphs, which represent one phoneme, Smith lists nk. In this same category, she places the combinations of ch, gh, and qu as representing only one phoneme. Smith gives sch as representing a blend in her column on blends and then gives ch as representing only one phoneme under consonant digraphs.

Smith's description of vowels is just as inadequate as is that for consonants. Under vowel diphthongs, she presents oi and oy as representing one sound. She gives such words as cow, show, bough, journey, though, through, and touch as vowel blends of two or more sounds. She confuses vowel digraphs with diphthongs. For her authorities, Smith cites Cordts and McBroom (1927).

Smith cites a study by Aaron (1960) to lament the fact that experienced and prospective teachers have a deficiency in a knowledge of phonic generalizations. Using a sample of 293 subjects, among which were both experienced and prospective teachers, Aaron's research yielded a rounded-off mean score of correct items of 57. Smith (p. 198) expresses the hope that readers of her book will become acquainted with at least the following common phonic principles:

1. When a one-syllable word contains two vowels, one of which is the final e, the first vowel is usually long and the final e is silent, as in pine and note.

2. When there is only one vowel in a word and that vowel does not come at the end of the word, the vowel is usually short, as in pin, not.

3. When two vowels come together in a one-syllable word, the first vowel is usually long and the second vowel is usually short, as in boat, hail. There are some exceptions, of course, such as bread.

4. If y is the final letter in a one-syllable word, it is usually long, as in fly, cry, cypher; if it is the final letter in a two-syllable word, it is usually short, as in baby, happy.

5. The letter c has the soft sound when followed by e, i, or y, as in center, city, cypher; it has the long sound when followed by o, a, or u, as in cold, cage, cure.

6. The letter g has the soft sound when followed by e, i, and y, as in gentle, giant, gypsy.

7. When ght appears in a word, gh is silent.

8. Usually, a consonant is silent in these cases:

   K when it comes before n, as in knee.

   W when it comes before r, as in write.

   C when it is joined with k, as in kick.

   Gh when it comes at the end or close to end of a word, as in though.

   T when it comes in the middle of a one-syllable word, as in hatch.

9. The vowels a, e, i, o, and u all have a soft, short sound which is the same as in balloon, garden, April, cotton, and circus. This sound always occurs in an unaccented syllable and is called the schwa sound.

It was the utility values of phonic principles like these which Smith offers that Clymer, Bailey, Emans, and Burmeister researched. The results of their efforts are of little value because they do not explain why the English spelling system functions the way it does. Let us focus on a few phonic generalizations pertaining to consonant phoneme/grapheme correspondences which Clymer, Emans and Bailey report to have 100% utility values to demonstrate how useless to the teaching of reading they are, as well as how nothing is explained about English spelling.

1. When c and h are next to each other, they make only one sound.

Comment: Which of the three phonemes associated with the ch

digraph is the only phoneme represented? Is it the /ch/ phoneme as heard in church, the /k/ in school, or the /sh/ in machine? Why does this digraph represent the /k/ phoneme in English spelling? These specifics appear not to have been a part of the consideration which yielded the 100% utility value.

2. When the letter c is followed by o or a, the sound of k is likely to be heard.

Comment: This statement does not direct a reading specialist, a teacher, or a student to ask why English spelling uses the grapheme c to represent the phoneme /k/ before the graphemes o or a. Like most phonic generalizations, this statement fails to stimulate the scientific inquiry which would lead to understanding and appreciating English spelling.

3. When a word begins kn, the k is silent.

Comment: The function of k must be other than that of representing a phoneme in words which begin with the grapheme kn. What is the function? Again, this phonic generalization tends to obfuscate rather than clarify English spelling.

4. Ch is usually pronounced as it is in kitchen, catch, and chair, not like sh.

Comment: Clymer reported a utility value of 95% based upon an analysis of words found in basal series for the primary grades. Emans' sample of 10% of the words beyond primary levels in The Teacher's Word Book of 30,000, by Thorndike and Loye, yielded a value of 67% utility. Bailey's analysis of words that were found in two or

more of eight leading basal series for the first six grades yielded a utility value of 87% for these ch generalizations.

These rather high utility values demonstrate just how skewed basal vocabularies are. It appears the instances of the digraph ch representing the phoneme /k/ was not included since the focus was on the phonemes /ch/ and /sh/. Looking at words in the Funk and Wagnall's Standard Dictionary, which begin with the lower case ch digraph, we found 49% of them had the initial phoneme /ch/; 39% begin with /k/ and 12% with /sh/. Double and multiple entries like charge, -charge account, and chemical, -chemical agent, -chemical-bond were counted only once. This generalization fails to initiate a search to find out why the digraph ch is used in English spelling to represent the phonemes /ch/, /k/, and /sh/. The greatest disservice phonic generalizations do for those acquiring literacy is that they keep them ignorant of the functions of English spelling. Thus, they prevent the acquisition of literacy to the fullest extent by those learning to read and write English.

The idea of utility values for phonic generalizations has not led to helping prospective and practicing teachers develop an understanding of how English spelling functions. The extensive publicity given to the results of Bailey's, Burmeister's, Clymer's, and Emans' research has reinforced the belief that English spelling cannot be understood. It is portrayed as having a system without purpose and organization. These studies give credence to Gelb's (1969) perception of English spelling, which is:

> There is no rhyme or reason for the English spelling of 'height' as against 'high,' 'speak' as against 'speech,' 'proceed' as against precede,' or 'attorneys' as against 'stories.' The preservation of these irrational spellings in modern English writing seems to be due to an old and inborn individualistic tendency, adverse to accepting any bounds imposed by systematization. (p. 224)

Gelb (pp. 224-225) illustrates the inconsistency of English spelling by telling a story similar to George Bernard Shaw's Ghoti Story (Hodges & Rudorf, 1972; LeFevre, 1964). According to Gelb, a foreigner, whose name sounded like Fish, became annoyed with the flexibility of English spelling and spelled his name Ghotiguh. He derived it, grapheme by grapheme, from the spelling of the following words: gh represents /f/ in tough; o represents the short vowel /i/ in women; ti represents /sh/ in station, and ugh is silent in dough.

Responding to the Ghoti story, LeFevre explains:

> In spelling practice, not a one of the three phonemes is regularly represented in these portions by these graphemes. The gh is never used initially; ti representing /sh/ does not occur finally but medially-the initial part of a suffix as -tion or tiate; and o as short i occurs precisely once in English, in the word women. (p. 182)

The greatest contempt for the English spelling system is that expressed by the recurring "innovations" of modified alphabets (Downing, 1965, 1964; Malone, 1962; Mazurkiewicz, 1964; Pitman, 1964;

Rohner, 1966), diacritical marking systems (Fry, 1964), and even the use of colors (Gattegno, 1962) to represent phonemes. They are recurring because Brigham Young (1868) developed an alphabet and Nellie Dale (Morris, 1963) in 1899 proposed the use of colors to represent specific categories of phonemes.

Some scholars (Chomsky & Halle, 1968; C. Chomsky, 1970; Venezky, 1967a, 1967b; Weir & Venezky, 1968) have attempted to enlarge the approach to the study of English spelling. Their attempts have been received with the same degree of disinterest as reading specialists accorded Bloomfield (1933, 1942). Some reading authorities appear to believe linguistic inquiry is not relevant to reading. For this reason, Chomsky and Halle's hypothesis of abstract semantic principles underlying forms of English spelling is not well received by reading authorities.

An important study of spelling-to-sound correspondence was reported by Venezky and Weir (1966) and summarized by Venezky (1967a). The most readable for teachers is Venezky's (1967) summary in which he concludes, "English orthography, rather than being a highly irregular phonemic spelling system, as claimed by many linguists and educators, was a more regular and more complex system in which both sound and meaning shared leading roles" (p. 519). In another summary (1967a), Venezky concludes that English spelling "is not merely a letter to sound system riddled with imperfections, but, instead, a more complex and more regular relationship wherein phoneme and morpheme share leading roles" (p. 77).

Weir and Venezky (1968) attempt to shift the emphasis on English spelling from spelling-to-sound to other concerns. Hodges and Rudor (1972) suggest 'a major hang-up with us regarding English orthography in relation to reading is an insistence on grapheme-phoneme correspondence. Adherence to this insistence has naturally led to the often cited inconsistencies" (p. 93). Wardhaugh (1969) reports that linguists generally have not been concerned with grammatical and lexical influences on English spelling, but have insisted that statements about the phonemic system make reference only to phonemic information. Such a view, according to Wardhaugh, has "been dominant in American linguistics until very recently, and has been behind nearly all work conducted so far into grapheme-phoneme correspondence" (p. 102).

The Study: A Look at the Influences of Phonetics, Semantics, Etymology, and Preference

This study has evolved over a period of 16 years. As it progressed, the perspective of grapheme-phoneme correspondence opened to include those of semantics, etymology, and preference. This study is unique in that it was questions asked by those experiencing difficulty in acquiring literacy that both propelled it and enlarged its perspective to include an examination of the influence of semantics, etymology, and preference as well as that of grapheme-phoneme correspondence on English spelling.

The study began in the fall of 1964, when one of the authors,

Williamson, secured a position to teach a three hour block of language arts and social studies to eighth grade students who had not become literate after attending school from nine to 10 years. All of the students had not been promoted at least once; many of them had failed twice.

Since the period was for three hours, we took walks in the city. We walked to the zoo, to the cemetary, to the university, to the jail, to mortuaries, etc. We walked. We talked. We wrote. The teacher could not read what the students wrote. The students could not read what they wrote. We walked more. We talked more. We wrote more. We did not read more.

Then one day our lives changed. We were at the zoo again. That day the apes put a show on for us. The students put on a show for the apes. Eureka! Eureka! The heavens opened. Why not take dictation from the apes! Return to the classroom while it was still hot. Read it! Act it out!

We became linguists on ape talk. Then, one student suggested we study human speech the way we had ape talk. The walking decreased. The talking increased. We were confronted by English spelling. What could we do? What should we do? This study began. The dictionary was opened to find answers to questions these illiterate students asked about English spelling.

After Williamson earned a doctorate in 1970, attention to illiterates and the questions they asked about English spelling became a focus again. A group of illiterate inmates at the federal correctional

institution in La Tuna, Texas, was worked with for two hours a week for an academic year. The purpose was to develop situations which would stimulate those prisoners to ask questions about English spelling as well as to have them explain why they believed they had not learned how to read and write.

The same type of program was conducted for six weeks in the summer of 1971, at the Job Corps Center in Shenck, North Carolina. Williamson lived with the corpsmen and observed how they functioned with literacy. In order to develop a social relationship with the corpsmen, which would facilitate conversation, he did K.P. with them, dug trenches with them, mowed lawns with them, etc. In the evenings, he observed letter reading and writing and spelled words asked of him. Conversations flowed freely and questions were asked about English spelling. It was observed that the corpsmen were far more literate during letter reading and writing than they were in classes designed to improve their language arts skills.

Professional responsibilities in university work provided opportunities to work with college students deficient in literacy skills. Questions about English spelling were responded to and a record kept of them. Navajo students in grades four through eight contributed to the questions which directed this inquiry into English spelling. Third grade pupils contributed when Williamson worked with a class of them for three hours a week for a school year. One day during a discussion on English spelling, a pupil said, "Our eyes pop out and plug up our ears." On the strength of this profound observation, a

list of questions will be given which was asked when the eyes were kept out of the ears.

A Sample of Questions Asked

1. Why do words which end with a u sound end with a w?
2. Why do many words end with y?
3. Why does ph represent the sound /f/?
4. Why do we end many words with double l's, s's, z's, f's, and ck?
5. Why does the letter h combine with the letters c, g p, s, t, and w to represent sounds?
6. Why does the silent letter e end words like sneeze?
7. Why do we begin some words with a silent k, w, p?
8. Why do the letters ch spell the sounds of /ch/, /k/, and /sh/?
9. How many syllables are there?
10. Why do we use the same first four letters in health that we do in heal?
11. Why does two, twice, twelve, and twenty begin with tw?
12. Why do we have the C-V-C-E and the C-V-V-C long vowel spelling pattern?
13. Why do we use the w and y in so many ways in English spelling?
14. Why does silent e end so many words?
15. Why are the letters ph used in spelling photograph in English and f is used in Spanish?

16. Why are the letters y and ch used in spelling psychology in English and i and c are used in Spanish?

17. Why does English use a silent p in spelling pneumonia and Spanish does not?

Questions like these led to the development of six hypotheses which formed the grid of abstract, coordinate ideas used to evaluate English spelling. The six coordinate ideas are: (1) phonemic distribution; (2) phonemic frequency; (3) phonics; (4) semantics; (5) etymology; and (6) preference. Each of the ideas is stated as an hypothesis.

1. Phonemic distribution within syllables influences how graphemes are used to represent one or more phonemes.

2. Phonemic frequency affects the variation "load" graphemes bear in phoneme-grapheme correspondence.

3. Phonics as an expression of relationships between phonemes and graphemes, while important, does not hold the highest priority in English spelling.

4. English spelling has as its highest priority the representation of semantic values.

5. English spelling often represents etymological information.
   a. It may use graphemes which do not represent phonemic values in a word to indicate etymology.
   b. It may use specific graphemes or combinations of graphemes to represent phonemic values as well as to indicate etymology.

6. English spelling often uses graphemes to satisfy preference:
   a. for not ending words with a specific grapheme or a single kind of a consonant grapheme if the vowel is a particular type.
   b. indicating when a specific grapheme represents a phoneme.

This grid of hypotheses formed the "sieve" through which spelled words were pressed. As words were sifted through, it became clear that the spelling of many of them included two or more of those co-ordinate points identified as being phonics, semantics, etymology, and preference. Thus, it is not meaningful to conclude that n percentage of English words are spelled to only indicate value x or information y. Of course, some "pure" phonetic values are always represented in every word spelling. Often the representation of phonetic values are accomplished with graphemes or graphemic combinations assigned phonetic values as well as a semantic value, or etymological information, or to satisfy a preference.

To demonstrate how this grid of hypotheses is used to analyze English spelling, each one of them will be discussed. Words will be used to demonstrate each's efficacy as it relates to explaining English spelling.

Phonemic Distribution

To test this hypothesis, the focus was on the four basic syllabic patterns with a speech production unit of organized consonants (C) and vowels (V). The four are: (1) V; (2) V-C; (3) C-V; and (4)

C-V-C. The capital V and C may represent one phoneme or a blend of phonemes as in he, oil; pan, plan. As can be seen, there are no consonantal phonemes in medial syllabic positions. Consonants appear only in initial and final syllabic positions. Vowel phonemes appear in initial, medial, and final syllabic positions.

Looking at consonantal, phonemic distribution within syllables, we find all but five consonants appear in initial and final syllabic positions. Four of the five (/h/, /w/, /y/, /hw/) appear only in initial syllabic positions (hay, head; with, want; yard, yes; where, whim). One (/ng/) appears only in final syllabic position (ring, sang).

Phonemic distribution for vowels vary also. Those vowels which are described as being long or diphthongized (ate, teach, owe, I, cube) will appear in all four of the basic syllables. Those that are referred to as being short appear in the syllables V-C and C-V-C with a few exceptions. The main exception is the occurrence of short e in the V syllable in words such as e/choic and e/ffete.

The differences in phonemic distribution between what is described in phonics as being long and short vowels may well have caused the development of the idea of closed syllables for short vowels (V-C: add, it; C-V-C: bet, cup) and opened syllables (V: a/ble, o/pen; C-V: hoe, tea) for long vowels (Cordts, 1965; Durkin, 1970; Fry, 1977; Guszak, 1972). Like most phonic generalizations, this one too is useless. It does not make sense linguistically because the distribution of several of the vowel phonemes, long as well as a number

of those that are neither long or short, appear in all four of the syllabic patterns.

However, it is quite reasonable to conclude that silent e is added to the syllabic patterns V-C/V-C-E and C-V-C/C-V-C-E (ate, ice; tape, bite) to indicate when a vowel grapheme represents a diphthongized vowel. But, to teach that short vowels appear in closed syllables and long vowels appear in opened syllables is to demonstrate an ignorance of linguistic phenomena. By adding silent e to the syllabic patterns of V-C and C-V-C, contrasts are achieved for six graphic, syllabic patterns--two for short vowels and four for long vowels, since short vowels usually do not appear in the syllabic patterns: V and C-V. The six are:

Short Vowels	Long Vowels
1. V-C	1. V
2. C-V-C	2. C-V
	3. V-C-E
	4. C-V-C-E

Certainly, the distribution of vowel phonemes within syllables influenced the use of silent e on V-C and C-V-C to indicate a long vowel is represented by a specific grapheme. However, the use of silent e in many other functions makes it useless to memorize that a final, silent e means a long vowel is in the word or syllable.

Phonemic Frequency

Phonemic frequency and phonemic distribution has integrated functions in their influence on English spelling. The consonant

phonemes to which the graphemes h, w, and y, are assigned to represent have a much lower frequency of use than do other consonant phonemes. A dictionary check and count of words which begin with the phonemes /h/, /w/, and /y/ reveal far fewer of these words than words having initial phonemes such as /b/, /k/, /m/, /s/, etc.

Since the frequency rates of the phonemes /h/, /w/, and /y/ are much lower than other consonants and their distribution is limited to initial, syllabic positions, they are assigned other functions to help resolve the problem of having more phonemes than graphemes as well as to satisfy specific preferences for not ending a native word with the graphemes i and u. We see the other functions of the grapheme h in the digraphic combinations of ch, gh, ph, sh, th, and wh.

The digraph wh is a logical choice to represent the /hw/ phoneme since it appears only in initial syllabic position. And, the phonemes with which the individual graphemes w and h are associated appear also only in initial syllabic position. The choice of the digraph combination ch is also rational when one becomes aware of how this digraph represents the phoneme /k/ in words not native to English. One of the phonemes c represents is /k/ (cut).

The hypotheses that phonemic distribution and phonemic frequency influenced English spelling are defensible. These two hypotheses help explain the spelling of such diverse words as:

Digraphs	Final y and w	V-C vs. V-C-E
church	fly	at - ate
laugh	my	odd - ode

Digraphs	Final y and w	V-C vs. V-C-E
photograph	biology	at - ate
should	day	C-V-C vs. C-V-C-E
them	cow	tap - tape
bath	allow	cut - cute
whine	new	rob - robe

Phonics

Since alphabetic writing depends upon stable correspondences between phonemes and graphemes, the motivating idea behind phonics is essential to the teaching of literacy. It is not the purpose of phonics we dispute. We disagree with phonic generalizations that were not derived through a scientific study of all the factors which influence English spelling. A scientific study of English spelling reveals that graphemes often represent more than phonetic values. Graphemes often represent more than sound. It is when a grapheme carries a "double load" or only a morphemic load that traditional phonics decrease in utility. That is, phonics fails to adequately describe all the factors present in English spelling.

Traditional phonics is adequate for describing and teaching the correspondences between most individual consonant letters and the phonemes they represent. A major exception to this occurs for the grapheme s and the phonemes with which it is associated. Traditional phonics is capable of describing the various functions of the vowel graphemes. Too much emphasis is given to those vowels referred to

as being long and short at the expense of the other nine vowels. There are no defined graphic patterns for these nine vowels. In speech, these nine vowels (san-i-ty; bird; ball; jaw; bett-er; book; shoat; oil; brown) are phonemically distributed in all four of the basic syllabic patterns. In writing or print, they occur in all the graphic patterns phonics relegate to long and short vowels.

Phonic generalizations are too rigid to focus on the "forest" which entails the total writing system. Through traditional phonics, only "trees" are seen. A person learning to read and write is never guided to see the relationships between long and short vowel graphic patterns. One does not learn how the decision to use the syllabic patterns V-C and C-V-C as graphic patterns for short vowels necessitated the need to add silent e to these patterns if the same graphemes were going to represent long and short vowels.

Short Vowel	Long Vowel
cap	cape

Traditional phonics does not lead to an understanding of the contrasting functions of the long vowel patterns. These several patterns distinguish between or among our numerous combinations (ee, ea, ei, ie, ai, oa) to serve to help achieve these contrasts we see in:

Long Vowel Patterns	Homophones
C-V-C-E - C-V-V-C	pale - pail
	mete - meet - meat
	there - their

Long Vowel Patterns	Homophones
V-C-E - V-V-C	ore - oar
	ale - ail
C-V - C-V-V	be - bee - Bea
	by - buy
	see - sea

The general and superficial treatment of the C-V-V-C graphic pattern fails to guide students to discover that functionally there are three of these. There is one for long vowels (boat, maid, see, please, receive); one for vowel digraphs (book, shoot, soup, clause); and one for a blend of two vowels, usually called diphthongs in reading (boil, shout, brown).

Finally, phonics fails to assist students to see the relationships between the graphemic dropping of final silent e before adding an inflection, a derivational suffix, or a syllable which begins with a vowel. Phonics does not help students acquire the insight of why dropping final silent e created the need for the short vowel graphic pattern C-V-C-C plus an inflection, a derivational suffix beginning with a vowel, or a syllable beginning with a vowel. We see these in:

Short Vowel: C-V-C-C+	Long Vowel: C-V-C+
tap - tapping	tape - taping
tapper	taper
tapped	taped
taps	tapes

Of course, final e is dropped on C-V-C-E because of graphemic

combinations like ee and ei, which serve in the long vowel C-V-V-C graphic pattern. If it was not dropped, adding -ing, -ed, or -er would cause tape to be spelled tapeing, tapeed, tapeer. The decision to drop final e on C-V-C-E words, created homographs when adding -ing, -ed, and -er to words like tap. The avoid creating homographs, the idea developed to double the final consonant grapheme on words like tap which generated the short vowel graphic pattern: C-V-C-C-+.

We see the C-V-C-C-+ pattern in words like cotton, summer, and little. There is a phonic rule which directs to divide words like robber, tanner, and dinner between the double consonants. This is unfortunate, since it separates the second consonant from the vowel with which it is associated. It is more linguistically appropriate to divide the word after the second consonant (rubb/er and supp/er).

Phonics fails to adequately explain vowels because their use in spelling often has semantic implications as do consonants.

Semantics

Spelling to indicate semantic value describes more efficiently the variations among graphic patterns used to indicate long vowels than do phonic generalizations which fail to explain why there are so many. A focus on homophones having diphthongized vowels shows why long vowel graphic patterns are extended beyond that of adding a silent e to V-C and C-V-C syllabic patterns. Let us look at these extended graphic patterns with semantic contrasts in mind.

Semantic Contrasts			Homophonic Examples	
Set I:	C-V-C-E/C-V-V-C		bate - bait	cole - coal
			whale - wail	pale - pail
			lone - loan	mule - mewl
Set II:	C-V-V-C/C-V-V-C			
	1) ie	ee	bier - beer	pier - peer
	2) ea	ee	meat - meet	peak - peek
	3) ea	ie	peace - piece	tear - tier
	4) ea	ei	sealing - ceiling	teal - teil
	5) ai	ei	rain - rein	faint - feint
Set III:	V-C-E/V-V-C		o're - oar	ale - ail
Set IV:	C-V/C-V-V		be - bue - Bea	
			so - sew - sow	
Set V:	C-V-V/C-V-V		sea - see	tea - tee
			flea - flee	hue - hew
			lie - lye	mue - mew

In some homophones having two or more syllables with one of them having the schwa, semantic contrast is achieved by using different vowel graphemes to represent the schwa. We see this in homophonic pairs such as: navel-naval; better-bettor; bridal-bridle; capital-capitol; censor-censer; coral-coral; council-counsel; dual-duel; idol-idle-idyl; and lesson-lessen.

Some consonantal graphemes are also used to achieve semantic contrast. Since the phoneme /s/ may be represented by either c or s, semantic contrast is achieved by the use of these two graphemes

as in: cession-session; cetaceous-setaceous; cite-site; cell-sell; proceed-seed; fence-defense; cent-sent-scent; and cymbal-symbol. This same process is seen in weasel-weazel.

English spelling also uses the graphemes k and w to achieve semantic contrast on some homophones. When these two graphemes are used to achieve semantic contrast, they do not represent phonemes. Some examples are:

Semantic Contrast: K	Semantic Contrast: W
knave - nave	wrap - rap
knew - new	wring - ring
knight - night	write - rite
knit - nit	wrote - rote
knot - not	wrest - rest

In some words, semantic representation is preserved by retaining the same spelling of a morpheme even when the vowel phoneme shifts from one sound to another. We see this in:

Original ⟶ Shift	Original ⟶ Shift
woman - women	heal - health
vine - vineyard	expedite - expeditious
sage - sagacity	revise - revision
telegraph - telegraphy	anxious - anxiety
malign - malignant	sign - signature
abolish - abolition	compete - competent

A grapheme which represents no phoneme in one use of a morpheme may be retained because it does represent a sound in another use of

the phoneme. This occurs in:

Silent Grapheme ——	Sound
sign	signature
bomb	bombard
condemn	condemnation
malign	malignant
soften	soft

N. Chomsky and Halle (1968) and C. Chomsky (1970) go into great detail explaining how phonemes shift from one morpheme use to another. Their explanations are worth studying. Even though we do not feel their transformational strategies are essential to explaining the role of semantics in English spelling, we are indebted to them for stimulating our intellects and giving us a more inclusive view of English spelling. The same indebtedness is owed to Venezky (1967a, 1967b) and Wier and Venezky (1968). Venezky's work encouraged and supported our efforts to understand the role of preference in English spelling.

Preference

There are some facets of English spelling which appear not to do anything more than satisfy preferences. Silent e at the end of a one syllable word or the last grapheme on a final syllable in a word is frequently used to satisfy preferences. Such applications occur in the following linguistic environments:

1. When the final phoneme in a word is /v/, silent e is added, as in: love, give, dove, receive, believe, massive, active.

2. When the final phoneme is /j/, the grapheme g represents it. Silent e indicates when g represents /j/, as in: bulge, fudge, beige, pledge, adage, advantage.

3. Silent e indicates when the grapheme c represents /s/ at the end of a word, as in: fence, glance, dance, peace, pierce, neice, since.

4. Silent e indicates when the digraph th at the end of a word represents the voiced /th/ phoneme, as in: teethe, wreathe, seethe, soothe.

5. Silent e ends words having the final phoneme /z/ when the vowel is long, as in: sneeze, breeze, seize, squeeze, freeze.

6. Silent e indicates when the graphemic combination qu at the end of a word represents /k/, as in: plaque, technique, claque.

7. Silent e indicates when the final grapheme s does not represent an inflection (cows, walks), as in: please, tease, house, purse, increase, horse, nurse.

English spelling satisfies some preferences by doubling the final consonant grapheme. This occurs if the vowel is short in a one syllable word or in the last syllable of a word and if:

1. The last phoneme is /l/, as in: well, fell; kill, hill; hull, full; shall. If the vowel phoneme is that described as being a broad /a/, the l is also doubled, as in: wall, call, fall, small.

2. The last phoneme is /s/, as in: lass, bass; mess, confess; miss, kiss; moss, boss; cuss, fuss.

3. The last phoneme is /f/, as in: staff, stiff, scoff, bluff, cuff.

4. The last phoneme is /z/, as in: razz, fizz, buzz.

5. The last phoneme is /k/, the graphemic combination ck is used, as in: black, stack; peck, neck; pick, stick; clock, stock; stuck, buck. It is reasonable to conclude that words like these would end with double k if English did not have the grapheme c. This reasoning is based upon the words which end with double l, f, s, and z.

Final e may serve two functions in some words. That is, it may indicate a long vowel as well as satisfying preferences as in face, lace; rice, nice; age, rage; amaze, gaze, huge.

English spelling prefers not to end native words with the graphemes i and u. To satisfy this preference, it takes advantage of the fact that in phonemic distribution, the consonantal phonemes /y/ and /w/ will not appear in final syllabic position. So, the graphemes w and y are used to satisfy these preferences, as in: now, allow; blew, few; blow, show; why, by; boy, alloy; day, pay.

With an appreciation of the roles of semantics and preferences in English spelling, the words say, says, said; two, twice, twelve, and twenty are enriched. The word said uses an i rather than a y because the grapheme d keeps from ending the word with an i. The spellings of say, says, and said indicate the same semantic value is behind all three. The tw in two, twice, twelve, and twenty represent the concept of twoness. We prefer to spell two to show its relationship to these other tw words.

Etymology

English has one of the most, if not the most, expansive vocabularies of any language. It has a system of spelling which indicates that many of its words are not native. This is accomplished by: (1) Spelling words as they are in their native language. (2) Using specific graphemes to spell morphemes native to Greek and Latin. Some of these graphemes represent phonemes while others do not. (3) Using the graphemes c and k to distinguish between etymologies that are not Greek and Latin.

The spelling of whole words the way they are spelled in their native language occurs for words from Spanish, French, Russian, etc. Some examples are:

Spanish	French	Russian
lariat	avenue	knout
avocado	boutique	kolinsky
coyote	plaque	kvass
lasso	antique	kulak

To indicate the etymology of Greek and Latin morphemes, English uses the graphemes h and p. These graphemes do not represent phonemes. We see this in such words as: psychology, pneumonia, pterodactyl, ptomaine, pseudonym; rhythm, rhyme, rhinocerous, rhetoric, rhapsody. This hypothesis may be checked by comparing the spelling of these words to that in Spanish. In Spanish, pneumonia is spelled neumonía; pseudonym is seudónimo; psychology is psicologia; and ptomain is ptomaína. Spanish sometimes retains the p. Rhinoceros

is spelled rinocuonte; rhythm is ritmo; rhyme, rima; rhetoric is retórica; rhapsody is rapsodia. In these words, the grapheme h is omitted.

English spelling uses the digraphs ph and ch to indicate Greek and Latin etymology as well as the graphemes y, z, and x. When these represent etymology, ph indicates /f/, ch indicates /k/; y represents a vowel; z and x represent /z/.

This may be verified by comparing the English and Spanish spelling of words which share morphemes native to Greek and Latin. Here are some examples:

English	Spanish	English	Spanish
	ph		ch
telephone	telefona	character	carácter
telegraph	telégrafo	Christian	Cristiano
phosphor	fosfaro	chlorine	cloro
	y		x
system	sistema	xylophone	xilórgano
cycle	ciclo	xerron	xerron
dynamite	dinamita	xiphoid	xifoideo
		z	
zealot	celador	zephyr	céfiro
zone	zona	zoology	zooloquía

A study of the functions of these graphemes in many words and comparing English and Spanish spelling suggest that they, these phonemes, are doing two things. One, they represent phonemic values.

Two, they indicate a Greek or Latin etymology. English spelling is far more concerned with etymology than is Spanish. However, some Spanish spellings do indicate etymology.

The use of c and k to distinguish between or among etymologies is not as clear cut as are the use of the graphemes discussed above. Yet, many of the words which begin with the grapheme k have etymologies that are neither Greek or Latin.

The digraph gh indicates English etymology. Out of 52 words in which this digraph appears, only one has an etymology that is not English. The word is plight, and its etymology is Old French. Most of the words having gh in their spelling have the Old English etymology.

When gh represents /f/ in final syllabic position, it may well satisfy the preference for not ending a word having a short vowel (laugh) or the vowel heard in jaw with a single f grapheme (cough, trough, as well as rough and tough).

Conclusions

Shaw's Ghoti Story about English spelling should not block a systematic study of it. There is ample evidence that the evolution of English spelling has formed a system which represents more than phonetic values. One may find encoded in many graphemes semantic, etymological, and preference information as well as phonological cues. If all these values are not understood and appreciated, then English spelling is a morass of confusion. Traditional phonics tends to generate a morass of confusion because the focus of its principles and generalizations are only on phoneme-grapheme correspondences.

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